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Notice of Allowability	Application No.	Applicant(s)	
	10/528,357	OHTSUKA ET AL.	
	Examiner	Art Unit	
	Ching Chang	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 17-32.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>03/18/2005</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|--|

DETAILED ACTION

This Office acknowledges the Preliminary Amendment filed on 03/18/2005. Claims 1-16 are cancelled, and new claims 17-32 are added as requested.

Reasons For Allowance

1. The following is an examiner's statement of reasons for allowance:

Regarding claim 17, the claimed combination including the limitations directed to the specifics of an engine inter-cylinder variation detection device comprising a calculating means for detecting an indicator of the state of combustion in each cylinder at the time of a first valve opening characteristic and the time of a second valve opening characteristic set by a valve operating characteristic setting means and, at the same time, calculating the deviation between these indicators and a standard value for each cylinder, is not disclosed or rendered obvious the art of record.

Regarding claim 18, the claimed combination including the limitations directed to the specifics of an engine inter-cylinder variation detection device comprising a calculating means for detecting an indicator of the state of combustion in each cylinder at the time of a first valve opening characteristic and the time of a second valve opening characteristic set by a valve operating characteristic setting means and, at the same time, calculating the deviation between these indicators and an average value of the indicators of the state of combustion for the cylinders, is not disclosed or rendered obvious the art of record.

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Regarding claim 26, the claimed combination including the limitations directed to the specifics of an engine inter-cylinder variation detection device comprising a valve opening characteristic variation detecting means for detecting variation of the valve opening characteristic for each cylinder by using an indicator of the state of combustion detected by an indicator detecting means at the time of a second valve opening characteristic and the variation of the fuel injection amount detected by a fuel injection amount variation detecting means, is not disclosed or rendered obvious the art of record.

Regarding claim 29, the claimed combination including the limitations directed to the specifics of an engine inter-bank variation detection device comprising a valve opening characteristic variation detecting means for detecting the variation of the valve opening characteristic for each cylinder by using an indicator of the state of combustion detected by an indicator detecting means at the time of a second valve opening characteristic and the variation of the fuel injection amount detected by a fuel injection amount variation detecting means and finding the average of the variations of the valve opening characteristics for the cylinders for each bank to thereby detect the variation of the valve opening characteristic for each bank, is not disclosed or rendered obvious the art of record.

Regarding claim 30, the claimed combination including the limitations directed to the specifics of an engine inter-bank variation detection device comprising a valve opening characteristic variation detecting means for detecting the variation of the valve opening characteristic for each bank by using an

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indicator of the state of combustion detected by an indicator detecting means at the time of a second valve opening characteristic and the variation of the fuel injection amount detected by a fuel injection amount variation detecting means, is not disclosed or rendered obvious the art of record.

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Takemura et al. (US Patent 6,615,775).
- Shimizu et al. (US Patent 6,425,357).

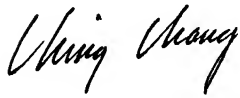
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

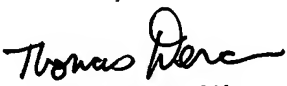
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang


THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700